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AUTHOR Maul, June Paradise
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ABSTRACT

This researcher examined the development of social (moral) reasoning as a result of student exposure to the social, experiential atmosphere of a school community with intensive education. A group of 250 students in grades nine through twelve were given the Defining Issues Test which examined social reasoning on six moral judgment stories. The study examined the relative importance attributed to principled moral reasoning as a function of the number of years of exposure to intensive education which is considered a highly social and experiential atmosphere. The students' perception of the environment was also examined using Moos's Classroom Environment Scale. Preliminary evaluation of the study showed that the number of years of experience in this school community had a significant effect on the level of moral-cognitive reasoning.
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Intensive Education: The Development of Social
Reasoning in a Technological Society

By June Paradise Maul

Dept. of Science and Humanities
Graduate School of Education
Rutgers University
New Brunswick, N.J.

Center for Moral Education
Roy E. Larsen Hall, Appian Way
Harvard University
Cambridge, Mass.

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The function which science has to perform in the curriculum is that which it has performed for the race: emancipation from local and temporary incidents of experience, and the opening of intellectual vistas unobscured by the accidents of personal habit and predilection. . . . In emancipating an idea from the particular context in which it originated and giving it a wider reference the results of the experience of any individual are put at the disposal of all men. Thus ultimately and philosophically science is the organ of general social progress.

Dewey, 1916
Democracy and Education

Introduction

Logical scientific reasoning does not stand apart from social and moral reasoning. In a technological society so complicated with moral dilemmas both forms of reasoning must develop in all individuals as a part of our educational process. Children's levels of social and moral reasoning must be developed to a level capable of reorganizing technology to serve nature as well as man. This development must be the aim of all education.

Society is man's environment. It is within man and his society that we must seek a solution to all those ills which plague man, his environment, his society. Man is constantly polluting his air and his water. Soil erosion is a plague of the entire earth. Fertilizers and pesticides are used without a thought of the permanent damage they might cause. Industrial rape and urban growth continue to encroach upon the wild, the free, the virgin. Noise has become a serious pollutant. Virtually every bite of food we eat is treated with chemicals. The causes and cures for all of these ecological problems lie within man.

As technology advances man is forced to deal with immediate moral and social dilemmas. When and how will man ~~develop~~ the humanity and vision required to control population growth? What right does an individual have to decide that he has the right to die with dignity? Is there some right answer to the conflict between an individual's right to life versus his right to a certain quality of life which if not met may end in death? These answers can come with a more humane and a more socially reasoned approach.

In a society in a state of social and moral turmoil, science educators can no longer afford merely to educate young scientists. Rather, we must educate all of society to be technologically aware and intellectually capable of dealing with those social and environmental problems which threaten our society. Science, technology, and society are one.

Necessary' Conditions for the Development of Moral and Social Reasoning

In Piaget's writing, The Moral Judgement of the Child, he discusses the development of the sense of justice in the child as he enters adolescence. It is this development of a sense of justice and fairness that can lead to higher levels of social reasoning -- respect for authority cannot. The development of this sense of justice has been studied by individuals such as L. Kohlberg and James Rest over the past twenty years. Just as Piaget found levels of logical reasoning to be developmental, L. Kohlberg has found the stages of moral reasoning involving social dilemmas to be developmental, as described in Table I.

-----Piaget had felt that authority could not be the source of justice in that the process by which a sense of justice developed was dependent upon the concept that justice presupposes authority. Thus he found that a sense of justice (Piaget, p. 319)

can develop only through the progress made by cooperation and mutual respect -- cooperation between children to begin with and then between child and adult as the child approaches adolescence and comes secretly at least, to consider himself as the adult's equal.

Thus school must provide the types of environments which will allow the child and his moral and social reasoning to develop as fully as possible.

Kohlberg has carefully outlined those conditions which he feels are necessary for the development of moral reasoning.

Table I -- Kohlberg's levels of moral reasoning and Piaget's levels of logical reasoning. (The table indicates their relationship; however, the corresponding logical stage is necessary but not sufficient to reach the moral stage indicated.)

Piaget's Logical Stage	Kohlberg's Moral Stage
<u>Symbolic, intuitive thought</u>	<u>Stage 0: The good is what I want and like.</u>
PRECONVENTIONAL LEVELS	
<u>Concrete operations --</u> <u>Substage 1: Categorical classification.</u>	<u>Stage 1: Punishment and obedience orientation:</u> Right action involves avoidance of punishment and "bad" behavior.
<u>Concrete operations --</u> <u>Substage 2: Reversible concrete thought.</u>	<u>Stage 2: Naive instrumental hedonism:</u> Right action is that instrumentally satisfying the self's needs and occasionally other's. Awareness of relativism of value of each actor's needs and perspective. Naive egalitarianism and orientation to exchange and reciprocity.
	Both stages 1 and 2 show a general responsiveness to labels of good and bad; interpretation is in terms of physical or hedonistic consequences of action (punishment, rewards).
CONVENTIONAL LEVELS	
<u>Formal operations --</u> <u>Substage 1: Relations involving the inverse of the reciprocal.</u>	<u>Stage 3: Interpersonal Concordance:</u> Orientation to interpersonal relations, to approval, and to pleasing and helping others. Conformity to stereotypical images of majority or natural role behavior.
<u>Formal operations --</u> <u>Substage 2:</u>	<u>Stage 4: "Law and order" orientation:</u> Maintenance of social order, fixed rules, and authority. Right behavior involves respect for authority, performance of one's duty, and maintenance of social order.
	Both stages 3 and 4 involve orientations towards maintaining the expectation of the individual's family, group, or nation regardless of the consequences.

Piaget's Logical Stages

Kohlberg's Moral Stages

Formal operations - Substage 3

POST-CONVENTIONAL OR PRINCIPLED LEVEL

Stage 5A: Social contract legalistic perspective (with utilitarian overtones): Right behavior is oriented towards respecting general individual rights which have been adopted by the whole society, or agreed upon by the whole society.

Stage 5B: Higher law and conscience orientation: There is an orientation towards right action involving all humanity and being upheld for the sake of conscience or some higher law.

Stage 6: Universal ethical principle orientation: Right is directed by certain ethical principles "of justice, or reciprocity and equality of human rights, and of respect for the dignity of human beings as individual persons."

At all the principled levels right behavior involves moral values and principles which are valid in and of themselves, apart from the authority of the group.

Theoretically, as one progresses through the stages of moral development there is an increasing ability to not only organize but also to integrate one's social experiences. In order to reach the highest or principled levels of moral reasoning, one must have obtained that level of logical reasoning which Piaget has labeled "formal operations". This is a necessity but not a sufficient condition. The "main experiential determinants of moral development seem to be amount and variety of social experience, the opportunity to take a number of roles and to encounter other perspectives." (Kohlberg, 1972, p. 15). However, schools seldom provide for any great social experiential opportunities. They ~~can be run on a stage~~ punishment orientation in combination with the law and order stage 4 orientation.

Intensive Education: More Opportunities for Social Experiences

The development of social reasoning as well as moral reasoning requires both a social and moral atmosphere in our schools. This type of atmosphere is very difficult to obtain in a school which has its day divided into 50-minute periods, students moving hurriedly in and out of classrooms, and teachers frantically trying to cover their lesson plan for the day.

Why do we have 50 minute, 55 minute, or sixty minute periods? Why are we limited to two-hour laboratory periods? Indeed, it remains an epistemological mystery why high

schools are typically structured with five or six or seven period per day. This concurrent time format has never been justified. It has been challenged. However, it still remains the predominant time structure in our high schools.

If rote memorization of nonsense syllables is the aim of science education, or education in general, then short class periods are desirable. However, if involvement and understanding and reasoning are the aims of education, then students need the time to become involved, to sit and to think, to interact with others, and finally to reason. Thus intensive education or concentrated learning may be more appropriate to these aims.

This researcher felt that time was indeed a controlling variable in the design of an educational environment. The question must then be raised as to exactly what effect time has on an educational environment. Previous research on intensive education (Powell, 1976) has suggested that intensive education has more potential than does concurrent education for providing the optimum conditions necessary for adolescent development and thus the development of cognitive abilities. These ideal conditions are (1) actual experience, (2) a moderately discrepant environment, and (3) the opportunity for role-taking. Thus one paradigm which was accepted by this researcher is that time is a controlling variable.

The second important paradigm that was accepted was that learning is developmental as stated by Piaget and that the organism develops as a result of interactions with his environment. There are however two areas of cognition which are usually separated. The first area is that of logical reasoning. The second area is composed of moral, social, and emotional cognition as described by Piaget, Dewey, and Kohlberg. In that schools are a social institution, and in that logical reasoning is a necessary but not a sufficient condition for moral and social reasoning, this researcher has chosen to examine social, rather than logical, reasoning.

The Research and Science Education

The major aim of this research was first to examine the effect of intensive education in one particular private school on the development of the social reasoning of its students as a result of the number of years that they were exposed to this particular school. Second, the research also proposed to describe the environment or moral atmosphere of the school.

This brings us to a third paradigm under which this research proceeded. This paradigm involves the acceptance of a Deweyian view of the educational process, and in fact of that part of the educational process devoted to science:

By science is meant that knowledge which is the outcome of methods of observation, reflection, and testing which are deliberately adopted to secure a settled assured subject matter. It involves an intelligent and persistent endeavour to revise current beliefs so as to weed out what is erroneous, to add to their accuracy, and, above all, to give them such shape that the dependencies of the various facts upon one another may be as obvious as possible. It is, like all knowledge, an outcome of activity bringing about certain changes in the environment. (Dewey, 1917, p. 219)

Science should not merely be taught as a set of formal and technical exercises in which information about our physical world is made an end in itself. So too reasoning should not be taught as an end in and of itself. Rather, the integration of science, reasoning, and society should foster a situation in which "ultimately and philosophically science is the organ of general social progress" (Dewey, 1917, p. 230).

The Design

It was within the conceptual framework constructed by the three above paradigms that this research was initiated, that the experimental design was developed, and that the data was collected and analyzed. The research examined the level of moral or social reasoning (as measured by James Rest's Defining Issues Test) as a function of the number of years which the students were a part of the intensive high school community. The school used for this study was a private, coeducational, college-preparatory, day school in suburban New Jersey called Gill/St. Bernard's High School. The school has an enrollment of a little over

two hundred students in grades nine through twelve. The school community is predominantly from the upper SES groups (that is, Groups I and II out of groups I through VI on Hollingshead's SES scale). As typical of many private high schools there are a number of new students each year in each of the four grades. Although the D.I.T. was given to 154 of the students the population yielded 85 members after the internal consistency check was run. The population of 45 females and 40 males is shown in Table II below.

Table II -- Members in each group tested.

Number of Years in this School	Grade							
	9th		10th		11th		12th	
	male female		male female		male female		male female	
	none	4 7	3 1	2 2	5 3	one	0 4	6 6
	two			4 6	4 4	three	5 10	

The D.I.T. is an objective test of moral and social reasoning developed by James Rest at the University of Minnesota. It produces a score which measures the percent of reasoning at the principled level. The scores can range from 0% to 95%.

Results

The D.I.T.'s from this study were all hand-scored by the researcher and did pass the consistency check. The results for the school are shown in Table III below:

Table III -- Mean and standard deviation for D.I.T. with grade and number of years in the school indicated.

		Grade of Students			
		9th	10th	11th	12th
Number of Years at the School	none	$\bar{x}=27.55$ sd=4.01	$\bar{x}=26.00$ sd=10.98	$\bar{x}=26.25$ sd= 7.63	$\bar{x}=22.38$ sd=11.02
	one		$\bar{x}=31.40$ sd=15.92	$\bar{x}=39.50$ sd= 8.63	$\bar{x}=45.78$ sd= 8.06
	two			$\bar{x}=46.20$ sd=18.00	$\bar{x}=51.88$ sd=11.47
	three				$\bar{x}=65.60$ sd=13.63

A multiple linear regression analysis was run on the above data for the eleventh and twelfth graders. These two sample populations were chosen since they had sufficiently large sample populations ($n = 26$ and 40), as well as possible points on the graph (three for the juniors and four for the seniors) to formulate equations. The dependent value was the level of social reasoning (or moral reasoning) on the D.I.T.; the independent variables were the students' S.A.T. scores (mathematics) and the number of years that they had been at this school.

For the junior sample the multiple linear regression analysis yielded a correlation of .48 with 23% of the variance being accounted for by these variables. The senior sample yielded a correlation of .83 with 68% of the variance being accounted for by these variables. The results of the analysis of variance for these two samples is shown in Table IV below:

Table IV -- Analysis of variance for junior and senior samples of students with level of significance indicated.

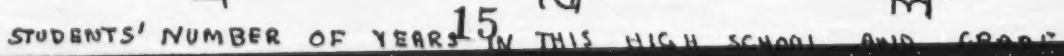
Junior sample				
Source	df	sum of squares	mean square	F
Regression(between)	2	1153.937	576.968	3.40(.10)
Residuals(within)	23	3901.025	169.610	

Senior sample				
Source	df	sum of squares	mean square	F
Regression(between)	2	10135.034	5067.517	39.92(.01)
Residuals(within)	37	4696.466	126.932	

The final analysis for both samples showed that the level of principled reasoning found on the D.I.T. was more highly correlated with the students number of years at the school than with their S.A.T. mathematics score, although there was some correlations with the mathematics score.

A graph of principled level of moral reasoning on the D.I.T. versus the number of years the students have been at this school is shown in Figure 1. The most

NUMBER OF SUBJECTS
AT EACH POINT



interesting part of this graph is the set of points for no years. There appears to be little difference in the level of moral reasoning between any of the groups, sophomores, juniors, or seniors. An F test supported this idea.

Limiting Conditions of this Research

This research would have ideally been a four-year longitudinal study, observing the entering freshmen, sophomores, juniors, and seniors, and recording their level of moral or social reasoning each year. That form of research is also very time and cost consuming and was impossible in this situation. It would also have been nice to have a match private school without intensive education. For lack of a matching private high school, this researcher has stated that the aim of this research was to examine the development of moral or social reasoning "in one particular private school" which had intensive education. Intensive education can not be said to create an environment which fosters the development of moral reasoning. It may however, have an effect on the type of environment that exists in a particular school. A school's environment does have an effect on the development of moral reasoning.

In that this study did not take four sets of data on the seniors, or three on the juniors, or two on the sophomores, we cannot state that this type of research may have found that the entering first-year seniors are

can not be compared to the second year, or third year, or fourth year seniors since the entering populations for sophomores, juniors, and seniors may be very different.

A Description of the Moral Atmosphere

The question now remains: What type of environment or atmosphere does this school have? Does it meet the criteria which have been suggested for developing a just community (Wasserman, 1977)? The Moral Atmosphere Interview was given to twenty-four of the seniors, some of whom had been at the school for zero, one, two or three years. This questionnaire had been developed by members of Harvard's Center for Moral Education.

When asked what were the best aspects of this particular school, there were certain answers which seemed to occur frequently. These favorable aspects were

- (1) intensive education as a time structure for education;
- (2) a chance to get to know other people and yourself; the time to talk to others;
- (3) the teachers caring about you;
- (4) a chance to concentrate and get involved in what you are learning or working on or doing;
- (5) being treated as an individual and being respected.

It was very aptly put by one of these students in response to the following question:

Question: "What has been best for you about this school?"

Answer: "The Unit Plan and the teachers. It makes school a living and learning and growing and loving experience."

From this type of answer it does, indeed, appear that there is some form of positive experience occurring on this campus. As to the negative side of this campus and this school, the most common answer was the commute to get there. For some of the students it is as much as one and one-half hours each way. The second most common response was that there was very little wrong. A few students indicated that their communication with the administration was not as good as their communication with the faculty and other students.

This interview also indicated that the students ~~felt that there was a strong sense of community in the school,~~ as illustrated by the facts that the members did care about each other, respect each others rights, and were willing to look at someone else's viewpoint. This sense of community not only included the students but also included the faculty and the administration.

The entire sample of seniors felt that the system of rules ~~was~~ fair. That is they had been designed by a group of students, faculty, and administrators and could be changed by the community if it was desired. Not only did the students feel the rules and the way in which they were made were fair, they also felt that they had the power or right to change them if they found it

necessary. In general, the group of students were not particularly concerned with rules. They knew the school had a set of guidelines which they felt were both necessary and fair. However, most of the rules were common sense guidelines. The community was running very smoothly and teachers were there to teach -- not to play policeman. Students followed the rules because they were fair, logical, and the students wanted to remain in the community.

Summary

This research was begun with the feeling that the curriculum -- english, history, art, mathematics, or science -- is not merely the subject matter which is taught by the teachers in the individual classrooms. Rather, it is everything which is learned in the school. This learning is not simply the memorizing of some facts, the understanding of some concepts, or the acquiring of some skills, but is rather, as was so aptly described by one student, "a chance to grow intellectually and socially."

If development is the aim of education, then school must provide the types of environments in which the organisms (the children) can interact with their environments. These environments must be just (Kohlberg, 1972). Intensive education in this school appears to have created an atmosphere which students perceive as fair and a community in which students want to participate, as

well as an educational experience which may be correlated with the development of moral and social reasoning. Hopefully, it will be through such experiments in the field of education that we may hope to identify all of the many factors which may have a positive effect on the development of social and moral reasoning. It is only through the development of such reasoning that we will have the types of citizens who can solve the dilemmas which constantly face our technological society, threatening man, his environment, his society.

References

1. Dewey, John, Democracy and America, New York: MacMillan and Company, 1916.
2. Kohlberg, Lawrence, "A Cognitive-Developmental Approach to Moral Education", The Humanist, November/December, 1972, pp. 13-16.
3. Kohlberg, Lawrence, "Continuities and Discontinuities in Childhood and Adult Moral Development Revisited," Collected Papers on Moral Development and Moral Education, Cambridge, Massachusetts: Harvard's Center for Moral Education, 1973.
4. Kohlberg, Lawrence, "The Cognitive-Developmental Approach to Moral Education," Phi Delta Kappan, June 1975.
5. Kohlberg, Lawrence, "The Moral Atmosphere of the School," In N. Overley (editor), The Unstudied Curriculum, monograph for Association of Supervision and Curriculum Development, Washington, D.C., 1970.
6. Kohlberg, L., and Mayer, R., "Development as the Aim of Education," Harvard Education Review, Vol. 42, No. 4, November 1972, pp. 449-496.-
7. Piaget, Jean, The Moral Judgement of the Child, New York: MacMillan and Company, 1965.
8. Powell, Barbara, Intensive Education: The Impact of Time on Learning, Boston: Education Development Center, 1976.